

WHAT IS CLAIMED IS:

1           1. A method of processing a document in a workflow system, the method  
2 comprising:

3           detecting when a document is at a refinable place in a first workflow network,  
4 the first workflow network specifying a plurality of operations to be performed on the  
5 document including a first operation and a second operation, the refinable place occurring at  
6 a location in the first workflow network after the first operation and before the second  
7 operation is performed on the document;

8           determining, when the document is at the refinable place, if a second  
9 workflow network specified by the document is permitted to be attached to the refinable  
10 place of the first workflow network, the second workflow network specifying one or more  
11 operations to be performed on the document; and

12           if the second workflow network specified by the document is permitted to be  
13 attached to the refinable place of the first workflow network, attaching the second workflow  
14 network to the refinable place of the first workflow network such that the document is  
15 processed according to the second workflow network before the second operation specified  
16 by the first workflow network is performed on the document.

1           2. The method of claim 1 wherein the first workflow network is  
2 configured by a workflow designer and the second workflow network is configured by an  
3 author of the document.

1           3. The method of claim 1 wherein detecting when the document is at the  
2 refinable place in the first workflow network comprises:

3           detecting when the first operation has been performed on the document.

1           4. The method of claim 1 wherein determining if the second workflow  
2 network specified by the document is permitted to be attached to the refinable place of the  
3 first workflow network comprises:

4           determining permissions information specified for the refinable place; and

5           determining that the second workflow network specified by the document is  
6 permitted to be attached to the refinable place of the first workflow if the document satisfies  
7 the permissions information specified for the refinable place.

1                   5.       The method of claim 4 wherein the permissions information specified  
2 for the refinable place is configured by a designer of the first workflow network.

1                   6.       The method of claim 1 wherein determining if the second workflow  
2 network specified by the document is permitted to be attached to the refinable place of the  
3 first workflow network comprises:

4                   determining permissions information associated with the document; and  
5                   determining that the second workflow network specified by the document is  
6 permitted to be attached to the refinable place of the first workflow if the permissions  
7 information associated with the document permits the attachment.

1                   7.       The method of claim 6 wherein the permissions information associated  
2 with the document is configured by an author of the document.

3                   8.       The method of claim 1 wherein attaching the second workflow  
4 network to the refinable place of the first workflow network such that the document is  
5 processed according to the second workflow network before the second operation specified  
6 by the first workflow network is performed on the document comprises:

7                   performing at least one operation from the one or more operations specified by  
8 the second workflow network on the document before performing the second operation  
9 specified by the first workflow network on the document.

1                   9.       The method of claim 1 wherein attaching the second workflow  
2 network to the refinable place of the first workflow network such that the document is  
3 processed according to the second workflow network before the second operation specified  
4 by the first workflow network is performed on the document comprises:

5                   identifying a set of one or more workflow networks specified by the  
6 document;

7                   identifying a workflow network from the set of workflow networks that  
8 satisfies a selection criterion; and

9                   processing the second document according to the workflow network identified  
10 from the set of workflow networks before performing the second operation specified by the  
11 first workflow network on the document.

1                   10. The method of claim 1 wherein the second workflow network attached  
2 to the refinable place of the first workflow network comprises a refinable place.

1                   11. The method of claim 1 further comprising:  
2                   if the second workflow network specified by the document is not permitted to  
3 be attached to the refinable place of the first workflow network:  
4                   determining a set of workflow networks attached to the refinable place  
5 of the first workflow network;  
6                   identifying at least one workflow network from the set of workflow  
7 networks for processing the document; and  
8                   processing the document according to the at least one workflow  
9 network before performing the second operation specified by the first workflow network on  
10 the document.

1                   12. The method of claim 1 further comprising:  
2                   if the second workflow network specified by the document is not permitted to  
3 be attached to the refinable place of the first workflow network:  
4                   determining a first set of workflow networks attached to the refinable  
5 place of the first workflow network;  
6                   based upon permissions information associated with the document,  
7 detaching one or more workflow networks included in the first set of workflow networks  
8 from the refinable place such that a second set of workflow networks remain attached to the  
9 refinable place;  
10                  identifying at least one workflow network from the second set of  
11 workflow networks for processing the document; and  
12                  processing the document according to the at least one workflow  
13 network before performing the second operation specified by the first workflow network on  
14 the document.

1                   13. A method of processing a document according to a first workflow  
2 network, the first workflow network specifying a plurality of operations to be performed, the  
3 plurality of operations including a first operation and a second operation following the first  
4 operation, the method comprising:



1           19. The method of claim 13 wherein processing the document according to  
2 the second workflow network comprises:

3                 identifying a set of one or more workflow networks specified by the  
4 document;

5                 identifying a workflow network from the set of workflow networks that  
6 satisfies a selection criterion; and

7                 processing the second document according to the workflow network identified  
8 from the set of workflow networks before performing the second operation specified by the  
9 first workflow network.

1           20. The method of claim 13 wherein processing the document according to  
2 the second workflow network comprises:

3                 performing at least one operation from the one or more operations specified by  
4 the second workflow network before performing the second operation specified by the first  
5 workflow network.

6           21. The method of claim 13 further comprising:

7                 if the document is not permitted to be processed by the second workflow  
8 network:

9                 identifying a set of workflow networks;

10                 identifying at least one workflow network from the set of workflow  
11 networks for processing the document; and

12                 processing the document according to the at least one workflow  
13 network before performing the second operation specified by the first workflow network.

14           22. The method of claim 13 further comprising:

15                 if the document is not permitted to be processed by the second workflow  
16 network:

17                 identifying a first set of workflow networks;

18                 based upon permissions information associated with the document,  
19 deleting one or more workflow networks from the first set of workflow networks;

20                 identifying at least one workflow network from workflow networks  
21 remaining in the first set of workflow networks for processing the document; and

9 processing the document according to the at least one workflow  
10 network before performing the second operation specified by the first workflow network.

4 code for detecting when a document is at a refinable place in a first workflow  
5 network, the first workflow network specifying a plurality of operations to be performed on  
6 the document including a first operation and a second operation, the refinable place occurring  
7 at a location in the first workflow network after the first operation and before the second  
8 operation is performed on the document;

9 code for determining, when the document is at the refinable place, if a second  
10 workflow network specified by the document is permitted to be attached to the refinable  
11 place of the first workflow network, the second workflow network specifying one or more  
12 operations to be performed on the document; and

13 if the second workflow network specified by the document is permitted to be  
14 attached to the refinable place of the first workflow network, code for attaching the second  
15 workflow network to the refinable place of the first workflow network such that the  
16 document is processed according to the second workflow network before the second  
17 operation specified by the first workflow network is performed on the document.

24. The computer program product of claim 23 wherein the first workflow  
2 network is configured by a workflow designer and the second workflow network is  
3 configured by an author of the document.

1                           25. The computer program product of claim 23 wherein the code for  
2 detecting when the document is at the refinable place in the first workflow network  
3 comprises:

4 code for detecting when the first operation has been performed on the  
5 document.

1                           26. The computer program product of claim 23 wherein the code for  
2 determining if the second workflow network specified by the document is permitted to be  
3 attached to the refinable place of the first workflow network comprises:

4 code for determining permissions information specified for the refinable place;

5 and

6 code for determining that the second workflow network specified by the  
7 document is permitted to be attached to the refinable place of the first workflow if the  
8 document satisfies the permissions information specified for the refinable place.

1 27. The computer program product of claim 26 wherein the permissions  
2 information specified for the refinable place is configured by a designer of the first workflow  
3 network.

1 28. The computer program product of claim 23 wherein the code for  
2 determining if the second workflow network specified by the document is permitted to be  
3 attached to the refinable place of the first workflow network comprises:

4 code for determining permissions information associated with the document;

5 and

6 code for determining that the second workflow network specified by the  
7 document is permitted to be attached to the refinable place of the first workflow if the  
8 permissions information associated with the document permits the attachment.

1 29. The computer program product of claim 28 wherein the permissions  
2 information associated with the document is configured by an author of the document.

1 30. The computer program product of claim 23 wherein the code for  
2 attaching the second workflow network to the refinable place of the first workflow network  
3 such that the document is processed according to the second workflow network before the  
4 second operation specified by the first workflow network is performed on the document  
5 comprises:

6 code for performing at least one operation from the one or more operations  
7 specified by the second workflow network on the document before performing the second  
8 operation specified by the first workflow network on the document.

1 31. The computer program product of claim 23 wherein the code for  
2 attaching the second workflow network to the refinable place of the first workflow network  
3 such that the document is processed according to the second workflow network before the  
4 second operation specified by the first workflow network is performed on the document  
5 comprises:

6 code for identifying a set of one or more workflow networks specified by the  
7 document;  
8 code for identifying a workflow network from the set of workflow networks  
9 that satisfies a selection criterion; and  
10 code for processing the second document according to the workflow network  
11 identified from the set of workflow networks before performing the second operation  
12 specified by the first workflow network on the document.

1                           32.     The computer program product of claim 23 wherein the second  
2     workflow network attached to the refinable place of the first workflow network comprises a  
3     refinable place.

1 33. The computer program product of claim 23 further comprising:  
2 if the second workflow network specified by the document is not permitted to  
3 be attached to the refinable place of the first workflow network:

4 code for determining a set of workflow networks attached to the  
5 refinable place of the first workflow network;

6 code for identifying at least one workflow network from the set of  
7 workflow networks for processing the document; and

8 code for processing the document according to the at least one  
9 workflow network before performing the second operation specified by the first workflow  
10 network on the document.

1                   34. The computer program product of claim 23 further comprising:  
2                   if the second workflow network specified by the document is not permitted to  
3    be attached to the refinable place of the first workflow network:

4 code for determining a first set of workflow networks attached to the  
5 refinable place of the first workflow network;

6 based upon permissions information associated with the document,  
7 code for detaching one or more workflow networks included in the first set of workflow  
8 networks from the refinable place such that a second set of workflow networks remain  
9 attached to the refinable place;

10 code for identifying at least one workflow network from the second set  
11 of workflow networks for processing the document; and

12 code for processing the document according to the at least one  
13 workflow network before performing the second operation specified by the first workflow  
14 network on the document.

1                   35. A computer program product stored on a computer readable storage  
2 medium for processing a document according to a first workflow network, the first workflow  
3 network specifying a plurality of operations to be performed, the plurality of operations  
4 including a first operation and a second operation following the first operation, the computer  
5 program product comprising:

6 code for determining, subsequent to performing the first operation and before  
7 performing the second operation, if the document is permitted to be processed by a second  
8 workflow network specified by the document, the second workflow network specifying one  
9 or more operations to be performed on the document; and

10 if the document is permitted to be processed by the second workflow network,  
11 code for processing the document according to the second workflow network before the  
12 second operation specified by the first workflow network is performed on the document.

37. The computer program product of claim 35 wherein the code for  
2 determining if the document is permitted to be processed by the second workflow network  
3 specified by the document comprises:

4 code for determining permissions information specified for the first workflow  
5 network; and

code for determining that the document is permitted to be processed by the second workflow network if the document satisfies the permissions information specified for the first workflow network.

1           39. The computer program product of claim 35 wherein the code for  
2 determining if the document is permitted to be processed by the second workflow network  
3 specified by the document comprises:

4                 code for determining permissions information associated with the document;  
5 and

6                 code for determining if the document is permitted to be processed by the  
7 second workflow network specified by the document based upon the permissions information  
8 associated with the document.

1           40. The computer program product of claim 39 wherein the permissions  
2 information associated with the document is configured by an author of the document.

1           41. The computer program product of claim 35 wherein the code for  
2 processing the document according to the second workflow network comprises:

3                 code for identifying a set of one or more workflow networks specified by the  
4 document;

5                 code for identifying a workflow network from the set of workflow networks  
6 that satisfies a selection criterion; and

7                 code for processing the second document according to the workflow network  
8 identified from the set of workflow networks before performing the second operation  
9 specified by the first workflow network on the document.

1           42. The computer program product of claim 35 wherein the code for  
2 processing the document according to the second workflow network comprises:  
3                 code for performing at least one operation from the one or more operations  
4 specified by the second workflow network before performing the second operation specified  
5 by the first workflow network.

1           43. The computer program product of claim 35 further comprising:  
2                 if the document is not permitted to be processed by the second workflow  
3 network:  
4                 code for identifying a set of workflow networks;

5                 code for identifying at least one workflow network from the set of  
6 workflow networks for processing the document; and

7 code for processing the document according to the at least one  
8 workflow network before performing the second operation specified by the first workflow  
9 network.

1                   44. The computer program product of claim 35 further comprising:  
2                   if the document is not permitted to be processed by the second workflow  
3                   network:

4 code for identifying a first set of workflow networks;  
5 based upon permissions information associated with the document,  
6 code for deleting one or more workflow networks from the first set of workflow networks;  
7 code for identifying at least one workflow network from workflow  
8 networks remaining in the first set of workflow networks for processing the document; and  
9 code for processing the document according to the at least one  
10 workflow network before performing the second operation specified by the first workflow  
11 network.

45. A workflow processing system comprising:  
one or more systems configured to perform a plurality operations on a  
document specified by a first workflow network, the plurality of operations including a first  
operation and a second operation, the first workflow network comprising a refinable place  
occurring at a location in the first workflow network after the first operation and before the  
second operation is performed on the document; and

7 a workflow controller coupled to the one or more systems,  
8 wherein the workflow controller is configured to:  
9 detect when the document is at the refinable place in the first workflow  
10 network:

11 determine, when the document is at the refinable place, if a second

12 workflow network specified by the document is permitted to be attached to the refinable  
13 place of the first workflow network, the second workflow network specifying one or more  
14 operations to be performed on the document; and

15 if the second workflow network specified by the document is permitted  
16 to be attached to the refinable place of the first workflow network, attach the second  
17 workflow network to the refinable place of the first workflow network such that the

18 document is processed according to the second workflow network before the second  
19 operation specified by the first workflow network is performed on the document.

1 46. The workflow processing system of claim 45 wherein the first  
2 workflow network is configured by a workflow designer and the second workflow network is  
3 configured by an author of the document.

1 47. The workflow processing system of claim 45 wherein the workflow  
2 controller is configured to detect when the document is at the refinable place in the first  
3 workflow network by detecting when the first operation has been performed on the  
4 document.

1 48. The workflow processing system of claim 45 wherein the workflow  
2 controller is configured to determine if the second workflow network specified by the  
3 document is permitted to be attached to the refinable place of the first workflow network by:  
4 determining permissions information specified for the refinable place; and  
5 determining that the second workflow network specified by the document is  
6 permitted to be attached to the refinable place of the first workflow if the document satisfies  
7 the permissions information specified for the refinable place.

1 49. The workflow processing system of claim 48 wherein the permissions  
2 information specified for the refinable place is configured by a designer of the first workflow  
3 network.

1 50. The workflow processing system of claim 45 wherein the workflow  
2 controller is configured to determine if the second workflow network specified by the  
3 document is permitted to be attached to the refinable place of the first workflow network by:  
4 determining permissions information associated with the document; and  
5 determining that the second workflow network specified by the document is  
6 permitted to be attached to the refinable place of the first workflow if the permissions  
7 information associated with the document permits the attachment.

1 51. The workflow processing system of claim 50 wherein the permissions  
2 information associated with the document is configured by an author of the document.

1                   52.     The workflow processing system of claim 45 wherein the workflow  
2 controller is configured to attach the second workflow network to the refinable place of the  
3 first workflow network such that the document is processed according to the second  
4 workflow network before the second operation specified by the first workflow network is  
5 performed on the document by:

6 causing at least one operation from the one or more operations specified by the  
7 second workflow network to be performed on the document before the second operation  
8 specified by the first workflow network is performed on the document.

1                           53.     The workflow processing system of claim 45 wherein the workflow  
2 controller is configured to attach the second workflow network to the refinable place of the  
3 first workflow network such that the document is processed according to the second  
4 workflow network before the second operation specified by the first workflow network is  
5 performed on the document by:

6 identifying a set of one or more workflow networks specified by the  
7 document;

8 identifying a workflow network from the set of workflow networks that  
9 satisfies a selection criterion; and

causing the second document to be processed according to the workflow network identified from the set of workflow networks before the second operation specified by the first workflow network is performed on the document.

1                   54.     The workflow processing system of claim 45 wherein the second  
2 workflow network attached to the refinable place of the first workflow network comprises a  
3 refinable place.

1                           55.     The workflow processing system of claim 45 wherein the workflow  
2 controller is further configured to:

3 if the second workflow network specified by the document is not permitted to  
4 be attached to the refinable place of the first workflow network:

5 determine a set of workflow networks attached to the refinable place of  
6 the first workflow network;

7 identify at least one workflow network from the set of workflow  
8 networks for processing the document; and

9 cause the document to be processed according to the at least one  
10 workflow network before the second operation specified by the first workflow network is  
11 performed on the document.

1                           56.    The workflow processing system of claim 45 wherein the workflow  
2 controller is further configured to:

5 determine a first set of workflow networks attached to the refinable  
6 place of the first workflow network;

7 based upon permissions information associated with the document,  
8 detach one or more workflow networks included in the first set of workflow networks from  
9 the refinable place such that a second set of workflow networks remain attached to the  
10 refinable place;

11 identify at least one workflow network from the second set of  
12 workflow networks for processing the document; and

cause the document to be processed according to the at least one workflow network before the second operation specified by the first workflow network is performed on the document.

57. A workflow processing system comprising:

2 one or more systems configured to process a document according to a first  
3 workflow network, the first workflow network specifying a plurality of operations to be  
4 performed, the plurality of operations including a first operation and a second operation  
5 following the first operation; and

6 a controller system coupled to the one or more systems;

7 wherein the controller system is configured to:

8 subsequent to performing the first operation and before performing the  
9 second operation, determine if the document is permitted to be processed by a second  
10 workflow network specified by the document, the second workflow network specifying one  
11 or more operations to be performed on the document; and

12 if the document is permitted to be processed by the second workflow  
13 network, cause the document to be processed according to the second workflow network  
14 before the second operation specified by the first workflow network is performed.

1           58. The workflow processing system of claim 57 wherein the first  
2 workflow network is configured by a workflow designer and the second workflow network is  
3 configured by an author of the document.

1           59. The workflow processing system of claim 57 wherein the controller  
2 system is configured to determine if the document is permitted to be processed by the second  
3 workflow network specified by the document by:

4           determining permissions information specified for the first workflow network;

5 and

6           determining that the document is permitted to be processed by the second  
7 workflow network if the document satisfies the permissions information specified for the first  
8 workflow network.

1           60. The workflow processing system of claim 59 wherein the permissions  
2 information specified for the first workflow network is configured by a designer of the first  
3 workflow network.

1           61. The workflow processing system of claim 57 wherein the controller  
2 system is configured to determine if the document is permitted to be processed by the second  
3 workflow network specified by the document by:

4           determining permissions information associated with the document; and

5           determining if the document is permitted to be processed by the second  
6 workflow network specified by the document based upon the permissions information  
7 associated with the document.

1           62. The workflow processing system of claim 61 wherein the permissions  
2 information associated with the document is configured by an author of the document.

1           63. The workflow processing system of claim 57 wherein the controller  
2 system is configured to cause the document to be processed according to the second  
3 workflow network by:

4           identifying a set of one or more workflow networks specified by the  
5 document;

6           identifying a workflow network from the set of workflow networks that  
7 satisfies a selection criterion; and

8 causing the second document to be processed according to the workflow  
9 network identified from the set of workflow networks before the second operation specified  
10 by the first workflow network is performed.

4 causing at least one operation from the one or more operations specified by the  
5 second workflow network to be performed before the second operation specified by the first  
6 workflow network is performed.

if the document is not permitted to be processed by the second workflow network:

identify a set of workflow networks;

identify at least one workflow network from the set of workflow networks for processing the document; and

cause the document to be processed according to the at least one workflow network before the second operation specified by the first workflow network is performed.

1                           66.     The workflow processing system of claim 57 wherein the controller  
2     system is further configured to:

3 if the document is not permitted to be processed by the second workflow  
4 network:

identify a first set of workflow networks;

based upon permissions information associated with the document, workflow networks from the first set of workflow networks;

identify at least one workflow network from workflow networks set of workflow networks for processing the document; and

cause the document to be processed according to the at least one  
of the second operation specified by the first workflow network is